Proposal Review Summary

Proposal Review Summary

- What reviewers are instructed to look for
- The criteria for which proposals are selected
- What happens after the panel review

- Most of this is the same material presented to a review panel in the Sun-Earth Connection Division
- May not be exactly the same in other divisions – there are variations of philosophies for each community

Hopefully this will help us to

- Understand what is important to NASA
- Incorporate these ideas in proposals

The most important thing to remember

1. Pick a compelling and or timely question
2. Describe an approach that is feasible
3. Point out how the result of your approach will answer the question - Closure

The most important thing to remember

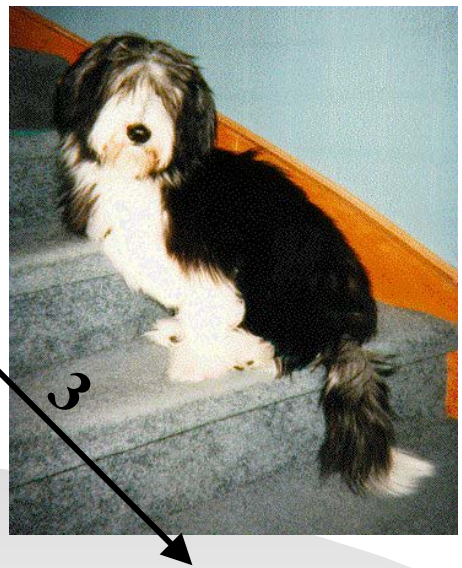
1. Make a clear and compelling case why anyone should care about your proposal objective
   - Compelling science topic
   - Hardware that would help resolve a compelling & timely question
   - Software tool that provides needed capability
   - Don't over promise
2. Clearly describe the method by which you will address the proposal objective
   - Describe how you will conduct the data analysis
   - Identify what is involved in developing your model or theoretical study
   - Identify your assumptions especially if they are controversial
   - Explain how you will mitigate any obvious problems associated with your proposed approach – you want to give the reviewer the answers to the questions that will be raised – anticipate concerns that might be raised
   - Make the compelling case that the method you are proposing is feasible

The most important thing to remember

3. Make sure that the result of your approach will actually answer the question you have posed
   - CLOSURE
     - Be objective in assessing closure
     - Don’t expect the reviewer to be an expert for topics that are not in the mainstream of science activity
     - You must clearly demonstrate that you will meet the objective of the proposal
     - Don’t expect the reviewer to easily accept controversial positions if the science community does not

A 13-Year Old Dog's Lesson

Torture



A Breeze

Presentation Counts!

General comments

- **Read the ANNOUNCEMENT**
- **Respond to the ANNOUNCEMENT**
  - Don’t force-fit your proposal
- RESEARCH OPPORTUNITIES IN SPACE SCIENCE – 2004 (ROSS-2004)
  - http://research.hq.nasa.gov/code_s/open.cfm
  - Appendix A is for Astronomy and Physics (includes Origins)
  - Appendix B is for Solar System Exploration (includes Mars)
  - Appendix C is for Sun-Earth Connection (includes rockets/balloons)
  - Appendix D is for Multidiscipline programs
- GUIDEBOOK FOR PROPOSERS RESPONDING TO A NASA RESEARCH ANNOUNCEMENT (NRA)
  - http://www.hq.nasa.gov/office/procurement/nraguidebook/

Jim's personal observations

- Proposals that are clear do better
  - Organize your proposal well, follow the Guidebook for Proposers
  - Use simple understandable sentences, don't ramble
  - Use figures effectively and wisely
  - Your proposal will be judged on what you say you will do, not on what you have done in the past. So don't boar the reviewer with how great you are and what you have done
- Proposals that are not in the main stream may have a greater burden to show compelling nature or feasible methodology
- Same for controversial methods or theories
- Proposals that are not focused will not do well
- Proposals that espouse ideas or methods that are not accepted by the science community are not accepted by the panel
  - Remember that the panel is composed of your peers

Jim's personal observations

- Proposals that are looking for new things and not solving problems will not do as well, regardless of how interesting they may be
  - In the current climate of tight funding, proposals with a high chance of success will be preferred over ones that do not demonstrate tangible closure.
  - No pie-in-the-sky proposals
- A surprising number of proposals that are resubmitted without fundamental changes are rated the same each time
  - The system is at least consistent
- Do-All proposals don't make it. Don't over-promise
  - a focused proposal with high chance of success is better positioned than a grandiose unrealistic proposal
- NASA is a mission driven agency
  - proposals with mission relevance are more strategically positioned and have a better chance


Scenic interlude - Yosemite 2004

What is presented to the panel

- State of the funding and submissions
  - How much money is available
  - How many proposals have been submitted
  - How many in each panel
  - Expected number of proposals to be funded
- Logistics of the support personnel
  - Computers and tracking of reviews
  - Lodging and travel issues
  - HQ panel conveners

- Overview of the program
- Overview of the selection process
- What to look for in a proposal
- Criteria for grading
- The panel process
- Conflicts and Confidentiality

2004 Geospace Guest Investigator Program Overview (example)

(Make sure proposal is responsive to NRA)

- Geospace GIP Scope: Maximize return from currently operating missions
  - Extensively draw upon multiple SEC data sets and other sources
  - Research beyond that of presently funded investigations – must show distinction from mission funded efforts
  - Employ expertise for interpreting data from multiple data sets
  - Carry out interpretative data analysis, theory and modeling
  - While global system problems utilizing as much of the flight mission data as appropriate are of special interest, problems of all scales within the SEC realm may be addressed by the solicited investigations.
  - Not LWS
- Each proposal submitted to the GIP should clearly address:
  - is the proposal in direct conflict with that of the PI teams _ duplication or new approach?
  - are the proposed observations feasible using currently operating instruments
  - what would be the procedures for obtaining mission data necessary to conduct the proposed investigation – Especially if Cluster data is critical to success of effort.

Geospace Guest Investigator Program Overview

- Geospace GIP Objectives:
  - correlative scientific research, that is, research that involves data analysis, theory, and simulations, that utilizes the data from the ACE, Cluster, FAST, Geotail, IMAGE, IMP-8, Polar, SAMPEX, SNOE, TIMED, and Wind missions, as well as other suitable space sensors, ground-based observations, and theory investigations.
- Cluster GIP
  - The 2003 Senior Review of SEC operating satellites recommended that $1M/year for the Fiscal Years 2005–2007 be allocated for a competitive Cluster-specific program to support modeling, theory, and the development of enhanced data analysis tools with the goal of addressing Cluster-specific science questions and enhancing the scientific return of the Cluster mission.
  - Upon selection, the investigators will organize a Cluster Theory Modeling and Data research team that will meet at least annually. Must include plan on how PI will participate on team.
  - Proposals for theory, modeling, and data analysis tools are specifically requested for this portion of the program. Data analysis of Cluster data is a regular GI.
  - It is envisioned that these proposals will be for larger efforts than those typically proposed for the GIP.

Proposal Selection Process

Activity	**Responsible Parties**	**Basis**
• Assess **scientific merit**	• Peer Review Panel	• Scientific Merit
• Define competitive range • Balance program • Recommend selection	• Code S Discipline Personnel	• Scientific merit • Cost • Program balance • Program goals
• Selection	• SEC Director	• Scientific merit • Discipline recommendation • Overall program goals

Scientific Merit: what to look for

Philosophy:

- It is the **privilege** of PI's to choose the question that they wish to address
- Is then their **obligation** to detail an appropriate methodology for attacking the this question

- **Science question**
  - A clearly defined question
  - The impact of answering the question
  - The timeliness of the question
- **Methodology**
  - A clearly defined methodology
  - A feasible methodology
- **Closure**

  Demonstration that the proposed effort will make a **substantial contribution** toward the resolution of the target problem (complete, ultimate solutions are not required)
- **Overall rating**

  Reflects how likely it is that the proposed effort will lead to a **significant** advance in understanding

Review Form
(Supporting Reviewer to take notes)

- Proposal Summary
  - Scientific Question: Brief statement in your own words of the question that is addressed
  - Methodology: Brief description in your own words of the method to be used
- Proposal Evaluation
  - Scientific Question: Comments on the importance of the question
  - Methodology: Comments on the approach (appropriateness/feasibility)
  - Closure - Ultimate solutions are not required - we are looking for a high probability that substantial progress will be made
- **Significant** Scientific Strengths
  - Short bullets (refer to Summary and Evaluation for detail)
  - A statement of **expected** result is helpful
- **Significant** Scientific Weaknesses
  - Short bullets (refer to Summary and Evaluation for detail)

Review Form(continued)

(Supporting Reviewer to take notes)

- Rationale for Rating (one or two sentences)
- Overall Rating (half marks allowed)
  - Text always takes precedence over rating letter
- Other Factors
  - Not generally sent to PI's
  - Only comment if there is an issue
    - Overall standing - this is the place to provide HQ comparative guidance, do not mention other proposals in review proper
    - Reasonableness of cost for product/program (especially if > $120K/year)
    - Education/Public Outreach - reviewed and funded elsewhere
- Comments to NASA and/or PI

Rating Definitions

- **EXCELLENT**
  - Proposals that address compelling fundamental scientific questions
  - AND use a well defined, feasible and appropriate methodology with good probability of results that will significantly impact the field
- **VERY GOOD**
  - Proposals that address important, but not necessarily compelling questions
  - AND/OR use methodologies about which there are some questions about appropriateness or feasibility
- **GOOD**
  - Proposals that address unclear or peripheral scientific questions
  - AND/OR do not define methodologies sufficiently to allow a reasonable estimate of their likely success, even though the results may be of some interest
- **POOR** - Proposals that are seriously flawed

Funding Priorities

As a rule of thumb . . .

Excellent proposals should be funded	**Now**
Very Good proposals should be funded	If at all possible
Good proposals should be funded	If unlimited funds
Poor proposals should **NOT** be funded	Even if unlimited funds were available

Process

- The review process is iterative
- It is almost paperless
- Each proposal will be discussed by the entire panel at least twice and frequently more often.
- Each proposal is assigned a primary and supporting reviewer who initially caucus to get a sense of the consistency of the submitted reviews
- Each proposal may or may not have any mail-in reviewers
- Mail-in reviewers may be conflicted. Their reviews are to be used at the discretion of the panel
- Each panelist will have a laptop with which they can access all reviews for each proposal
- It will be most efficient if, when possible, the first submission for the consensus review is an edited version of the "compiled review"

Process Comments
(not part of the panel presentation)

- *After all proposals have been presented once, a second round is begun where*
  - *comments have been included in the review text,*
  - *strengths and weaknesses have been identified as major or minor and*
  - *a first cut at a grade will be suggested*
- *The panel will discuss the logic, assessment and text to see if it makes sense*
- *Comments are made and text is suggested as a consensus is developed*
- *Generally, the excellent and poor proposals can be readily identified at this stage and may not need to be seen by the panel again*
- *Those in the Very Good and Good range are those that require most work since they are frequently borderline for funding*

Process (continued)

Hints to Panel

- The Supporting Reviewer should act as a secretary and document the panels comments while Presenting Reviewer leads the discussion
- Stop and write often; feeding material through - they need to begin ASAP in order that there won't be a crunch at the end of the process
- **Don't get hung up assigning ratings in the first round - try to get through all of the proposals once by noon of the 2nd day**
- Don't worry about typos - they will be taken care of in time

Things to DO

- **DO** use one-on-one conference time to identify disagreements and issues, not necessarily to resolve them or determine over-all rating of the proposal
- **DO** remember that your audiences are (1) PI's, (2) Discipline Scientists, and (3) Research Program Management Division Director
- **DO** ask for and/or volunteer help on proposals where extra expertise is needed
- **DO** remember that you are not refereeing a paper - the important result here is a clear statement of the most significant weakness(es), not a complete list of every quibble
- **DO** separate programmatic concerns from the evaluation of scientific merit
  - Comments on a PI 's past record, possible overlaps with other programs, relevance to NASA, and/or the reasonableness of the proposed budget, for example, are all important. However, they should be detailed on the Other Factors page and not be folded into your judgment on the scientific merit of the proposal.
- **DO** include a couple of examples to illustrate general judgements

Things to DO (continued)

- **DO** require sufficient explanation in the proposal to the extent that you are comfortable that the PI has considered possible pitfalls or weaknesses
- **DO**, in enumerating **STRENGTHS**,
  - give a succinct statement, in your own words, of the expected result
  - comment on relative importance of the science goal
  - address positive aspects of the method
- **DO**, in discussing **WEAKNESSES,**
  - distinguish between major and minor weaknesses
  - point out lack of a clear science question
  - comment when it is not clear what science progress might be expected
  - specify the impact of the weakness on the anticipated result
  - point out obstacles to closure
  - comment when a technical description is inadequate

Things to DO (continued)

- **DO document clearly, precisely, and as detailed as possible**
- **DO recognize that the text in the consensus review is the only admissible evidence of your effort and recommendation in regards to that proposal**

Things to NOT DO

- **DO NOT** expect the Presenting Reviewer to simultaneously lead the discussion and take notes - the Supporting Reviewer should take the notes during the panel discussion
- **DO NOT** read between the lines - your judgement of the scientific merit should be based on the material in the proposal, **not on your faith in the PI** (don't even mention the name, or the acronym 'PI' in the discussion of the scientific merit of the proposal)
- **DO NOT** fail to explain the significance of your statements - give science impact
- **DO NOT** include in the body of the review advice to the PI about how to do it better next time (e.g. advice on writing, organization, reference list): these belong on the back page as a 'Note to PI'
- **DO NOT** refer to competing proposals in the main body of review
- **DO NOT** use the first person in the text (you are writing a consensus review), not your personal oppinion

Certification of Reviews

- HQ or programmatic personnel may interrupt and
  - paraphrase content to check that "message received is message sent"
  - ask for clarification where needed
- Full Panel certifies that the text
  - accurately represents its assessment
  - is understandable and internally consistent
  - is consistent with overall rating
- Some panels will rank proposals and suggest or identify fundable range based on available funds
- **No decisions are made by the panel regarding proposal awards – Only the Division Director (Dick Fisher) has that authority.**
- Guiding Principle:

  If the rating and the text are in <u>disagreement</u>, then . . .

  either the grade is changed <u>OR</u>

  the text is changed *off-line*, and presented again to the panel


2nd Scenic interlude – Farm in Arkansas

Conflict of Interest

- NASA takes **conflict of interest** seriously:
  - No panel member is PI or Co-I on any proposal competing for funds for the same program - in some cases it is necessary, in order to have access to appropriate expertise, to request mail-in reviews from people who are in direct competition within the program
  - Panelists from the same institution as the PI or Co-I on any proposal will be asked to leave the room while that proposal is being discussed by the panel – (always done, even for HQ people)
  - Panelists with conflicts that arise form relationships with PI's or Co-I's other that the strictly institutional conflicts should **identify themselves**
  - NASA personnel and/or panel chairs are responsible for noting any conflicts before discussion of a given proposal begins and for keeping an official log documenting which panelists have been excluded from the discussion of specific proposals
  - You may very well know the rating of a proposal from your institution by the end of the process - consider this information **CONFIDENTIAL**

Confidentiality

- NASA also take the **confidentiality** of this process very seriously:
  - –NASA holds reviewer identity and panel deliberations in strictest confidence
  - –Proposers are provided with copies of the final panel consensus review of the proposal's scientific and technical merit and with portions of the "Other Factors" page as appropriate; all other material which was part of the review process is considered confidential
- Panelists should prepared to do the same:
  - –You may leave the material associated with review behind when you leave (although it has proven useful, on occasion, to have a set of notes on file until the final selections are announced)
  - –Details of the review should not be discussed with anyone outside of the process

Avoidance of conflict of interest and maintaining confidentiality are critical to the success of the peer review process

Suggestions
(shared informally with panelists after process is over – usually at a bar on Friday afternoon)

- NASA HQ is open to reasonable suggestions to improve the system
- Typically, there are 7+ reviews that are convened each year to review proposals of the various programs in SEC most have more than one panel.
  - SR&T, LWS, GIP
  - Does not include the explorer program proposals
- Well over 100 members of the community participate annually in Geospace alone
- By comparison, NASA has a lot more money and opportunities that leads to many more proposals than NSF
  - so the exact same process cannot be used simply because of amount of proposals